

IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application. An identifier indicating the status of each claim is provided.

Listing of Claims

1-24. (Canceled)

25. (Currently Amended) A process for producing metal nanoparticle-nucleic acid

composites, comprising:

providing a nucleic acid specific metal complex;

reacting said nucleic acid specific metal complex with a nucleic acid to produce a metal complex-nucleic acid conjugate;

removing any non-conjugated metal complexes and/or non-conjugated by-products; and

reacting the metal complex-nucleic acid conjugate with a reducing agent to produce a metal nanoparticle-nucleic acid composite,

wherein the metal complex-nucleic acid conjugate is formed by the specific ~~metalation of reacting of the nucleic acid specific metal complex with bases of the nucleic acid, or by binding of said nucleic acid specific metal complex through an interactive group, and~~

wherein the metal nanoparticle is catalytically active towards electroless metallisation.

26. (Currently Amended) The process according to claim 25, wherein the nucleic acid is reacted while dissolved in a solution, immobilized on a substrate or in a semisolid state with said nucleic acid specific metal complex.

27. (Previously Presented) The process according to claim 25, wherein the nucleic acid is selected from the group consisting of DNA, RNA, PNA, CNA, oligonucleotides, oligonucleotides of DNA, oligonucleotides of RNA, primers, A-DNA, B-DNA, Z-DNA, polynucleotides of DNA, polynucleotides of RNA, triplexes of nucleic acids and quadruplexes of nucleic acids-and combinations thereof.

28. (Previously Presented) The process according to claim 25, wherein the nucleic acid is double-stranded or single-stranded.

29. (Currently Amended) The process according to claim 25, wherein the nucleic acid specific metal complex is selected from the group consisting of dichloro (2,2':6',2"-terpyridine) platinum(II)[[,]]and cis-diaminodichloroplatinum(II)-and metal complexes with attached or integrated nucleic acid interacting groups.

30. (Previously Presented) The process according to claim 25, wherein the metal complex-nucleic acid conjugate is separated from a non-conjugated metal complex and/or non-conjugated by-products by chromatography, precipitation or rinsing.

31. (Previously Presented) The process according to claim 25, wherein the metal complex-nucleic acid conjugate is reacted with at least one reducing agent selected from the group consisting of boron hydrides, borohydride salts, Lewis base: borone complexes of the general formula L:BH₃, wherein L is amine, ether, phosphine, sulfide, hydrazine and derivatives, hydroxylamine and derivatives, hypophosphite salts, formate salts, dithionite salts and H₂.

32. (Previously Presented) The process according to claim 31, wherein the reducing agent is a gaseous reducing agent.

33. (Currently Amended) The process according to claim 25, wherein the metal nanoparticle of the composite comprises at least one metal selected from the group consisting of Fe, Co, Ni, Cu, Ru, Rh, Pd, Ag, Os, Ir, Pt, Au and combinations of these metals.

34. (Previously Presented) The process according to claim 25, wherein the metal nanoparticle cannot be visualized by atomic force microscopy or wherein the diameter of the metal nanoparticle is smaller than 3nm.

35. (Currently Amended) The process according to claim 25, further comprising the step of treating the metal nanoparticles within the metal ~~complex-nucleic acid conjugate-nanoparticle-nucleic acid composite~~ with an electroless plating solution to enlarge the metal nanoparticles.

36. (Previously Presented) The process according to claim 35, wherein the metal complex-nucleic acid conjugate is treated while dissolved in a solution, immobilized on a substrate or in a semisolid state with an electroless plating solution.

37. (Currently Amended) The process according to claim 35, wherein the metal nanoparticles within the metal nanoparticle-nucleic acid composite are treated with an electroless plating solution comprising at least one of the metals selected from the group consisting of Fe, Co, Ni, Cu, Ru, Rh, Pd, Os, Ir, Ag, Pt, Au and combinations thereof.

38. (Currently Amended) The process according to claim 35, wherein the metal nanoparticles-nanoparticle of the composite are treated with an electroless plating solution comprising at least one of the metals selected from the group consisting of magnetic Fe, Co, Ni, and combinations of these metals or combinations of these metals with boron (B) or phosphorous (P).

39. (Previously Presented) A metal nanoparticle-nucleic acid composite produced by the method of claim 25, wherein the metal nanoparticles have a diameter of less than 3 nm or cannot be visualized by atomic force microscopy.

40. (Currently Amended) A process for the manufacture of a nanowire, comprising:

providing a metal nanoparticle-nucleic acid composite produced by a process comprising reacting a nucleic acid specific metal complex with a nucleic acid to produce a metal complex-nucleic acid conjugate;

removing any non-conjugated metal complexes and/or non-conjugated by-products;

reacting the metal complex-nucleic acid conjugate with a reducing agent to produce a metal nanoparticle-nucleic acid composite; and

growing the nanoparticle metal nanoparticle of the composite by electroless deposition of a metal selected from the group consisting of Fe, Co, Ni, Cu, Ru, Rh, Pd, Os, Ir, Ag, Pt, Au and combinations or alloys thereof to produce said nanowire,

wherein the metal complex-nucleic acid conjugate is formed by the specific metalation of reacting of the nucleic acid specific metal complex with bases of the nucleic acid and/or or by binding of said nucleic acid specific metal complex to said nucleic acid through an interactive group of said complex binding, and

wherein the metal nanoparticle is catalytically active towards electroless metallisation, and wherein the metal nanoparticles have a diameter of less than 3 nm or cannot be visualized by atomic force microscopy.

41. (Currently Amended) A nanowire obtainable according to a method of produced by the process of claim 40,

wherein said nanowire comprises metal nanoparticle-nucleic acid composite which do or do not have insulating spaces between the individual nanoparticles positioned along the a nucleic acid strand of said nucleic acid of said metal nanoparticle-nucleic acid composite.

42. (Previously Presented) A small-scale network or electronic circuit, comprising at least one nanowire according to claim 41.

43. (Previously Presented) The process according to claim 26, wherein the semisolid state is a gel.

44. (Previously Presented) The process according to claim 29, wherein the said interacting groups are intercalating, groove binding or alkylating agents.

45. (Previously Presented) The process according to claim 30, wherein the metal complex-nucleic acid conjugate is separated from a non-conjugated metal complex and/or non-conjugated by-products by gel filtration chromatography, ion exchange chromatography, ethanol precipitation, water rinsing or aqueous salt solution rinsing.

46. (Canceled)

47. (Previously Presented) The process according to claim 40, wherein said growing step is a controlled growing step.